

U. S. Department of Agriculture - Forest Service
CENTRAL STATES FOREST EXPERIMENT STATION
 Columbus, Ohio

Table of STANDARD BOLT CUTS
 Showing the Number and Diameter by Size Classes

Plantation BLACK LOCUST
 (Robinia pseudoacacia, Linn)
 Central States Region

Station Note
 No. 14

August 2, 1934.

L. F. Kellogg

1934

Standard Bolts = 4.15 Ft.
 Stump Height = 0.5 Ft.

D.B.H. of Tree Inches	Total Ht. Ft.	Diam. of Bolts i.b. at small end - inches						Total No. of Bolts No.	Volume of Bolts	
		5	6	7	8	9	10		International Rule 1/8" kerf Bd. Ft.	Scribner Rule Bd. Ft.
		No. of 4.15-ft. Bolts								
7	30	1						1	2	2
	40	2						2	5	4
	50	2						2	5	4
	60	3						3	8	6
	70	4						4	10	8
8	30	1	1					2	8	6
	40	2	1					3	10	8
	50	2	2					4	15	12
	60	3	2					5	18	14
	70	3	3					6	22	18
9	40	2	1	1				4	18	14
	50	2	1	2				5	25	20
	60	2	2	2				6	30	24
	70	3	3	2				8	38	30
	80	3	4	2				9	42	34
10	40	1	1	1	1			4	25	20
	50	2	1	2	1			6	35	28
	60	2	2	2	1			7	40	32
	70	2	3	3	1			9	52	42
	80	3	3	3	2			11	65	52
11	40		1	1	1	1		4	35	28
	50	1	1	2	1	1		6	45	36
	60	1	2	2	2	1		8	60	48
	70	2	2	3	2	1		10	70	56
	80	2	2	3	3	1		11	80	64
	90	2	3	3	4	1		13	95	76

(over)

D.B.H. of Tree Inches	Total Ht. Ft.	Diam. of Bolts i.b. at small end - inches														Total No. of Bolts	Volume of Bolts	
		5	6	7	8	9	10	11	12	13	14	15	16	Intern'l Rule 1/8" kerf	Scribner Rule			
		No. of 4.15-ft. Bolts															Bd. Ft.	Bd. Ft.
12	40	1	1	1		1	1							5	42	36		
	50	1	2	1	1	1	1							7	58	48		
	60	2	1	2	2	1	1							9	72	60		
	70	1	2	2	2	2	1							10	88	72		
	80	1	3	2	2	3	1							12	105	86		
	90	2	2	3	3	3	1							14	120	98		
13	60	1	2	1	1	2	2							9	85	71		
	70	1	2	2	2	2	2							11	102	85		
	80	2	2	2	2	2	3							13	120	100		
	90	1	2	2	3	3	3							14	140	116		
14	60	1	1	1	2	1	1	2						9	102	84		
	70	1	1	2	1	2	2	2						11	128	106		
	80	1	2	1	2	2	3	2						13	150	126		
	90	1	2	2	2	3	2	3						15	175	144		
15	60	1	1	2	1	1	1	2	1					10	125	102		
	70	1	2	1	1	2	2	1	2					12	155	126		
	80	2	1	1	2	2	2	2	2					14	182	149		
16	60	1	1	1	1	1	1	2	1	1				10	148	120		
	70	1	1	1	2	1	2	1	2	1				12	178	144		
	80	1	1	2	1	2	2	2	1	2				14	212	174		
17	60	1	1	1	1	1	1	1	1	1	1			10	162	132		
	70	1	1	1	1	1	2	1	1	2	1			12	208	170		
	80	1	1	1	1	2	2	1	2	2	1			14	245	199		
18	60	1		1	1	1	1	1	1	1	1	1		10	198	164		
	70		1	1	1	2	1	1	1	2	1	1		12	242	200		
	80		1	2	1	1	2	1	2	1	2	1		14	282	233		
19	70	1	1	1	1	1	1	1	2	1	1	1	1	13	275	226		
	80	1	1	1	1	1	2	1	2	1	2	1	1	15	325	268		

Black locust is cut in bolt form for manufacture into insulator pins of several types, wagon hubs, wheel spokes, and treenails for wooden ships. As a rule locust bolts are cut at least 4 feet 2 inches and not over 8 feet 4 inches long, but very good bolts 3 feet or 10 feet long will often be accepted by manufacturers.

Bolts from large trees are preferred. Dealers figure 400 board feet to the cord for black locust bolts.

Manufacturers just about "break even" on bolts of 5"-7" diameter, and begin to make a profit when they are 8" and over in diameter. For wagon hubs, bolts of 9" and over are required.

Those who desire to know more about the stumpage, costs, and utilization of black locust in bolt form are referred to:

Cuno, J. B.

1930 - Utilization of black locust.
U. S. Dept. of Agri. Circular No. 131.
20 pp. illus. specifications. appendix.
Govt. Print. Off. Wash. D. C.

The foregoing table was constructed from average taper curves prepared by the F. S. Baker method of subordinate form quotients, and based on 396 stem measurements taken in Indiana, Illinois, and Ohio. The averages were made on heights at percentile diameters rather than on diameters at given heights. From the final taper curves, standard bolts 4.15 feet in length above a 0.5 foot stump were scaled. Fractional inches of small diameters were rounded off to the next lower inch class for conservatism. Curves of number of bolts over D.B.H. by height classes, and then over height by D.B.H., classes were prepared to check inconsistencies. Bolts have been rounded off to the nearest whole bolt rather than to carry fractional values which cannot be utilized.

No opportunity has come to check this table against actual bolt-cutting operations. Anyone having such an opportunity can give material service by comparing tabular values with those secured by careful utilization in trees of the same D.B.H.-height classes. This Station will appreciate such checks and criticism of this table.

This is the sixth of several tables for plantation black locust.